

Description

a motorized personal vehicle

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of U.S. Provisional Application No. 60/482,174, filed on June 24, 2003, incorporated herein by reference.

BACKGROUND OF INVENTION

[0002] The present application relates generally to motorized vehicles and more particularly relates to a single person vehicle with a cooler or other type of cargo space thereon.

[0003] The use of vending machines, refrigerators, and other types of product dispensers is well known in the art. Product sales volume from such a device often depends in part on placing the device in a location with sufficient consumer traffic. Because the use of such a device often may be an impulse purchase, the device preferably should be located wherever a sufficient number of consumers may gather or simply pass by.

[0004] One drawback with the use of many current devices is that

the device may not always be placed where the consumers may be gathered. This lack of availability may be due to the size of the device, the expense of the device, the availability of electrical power, the nature of the terrain, or even aesthetic reasons.

[0005] For example, it may not be practical to place a vending machine at a sporting venue when that venue only may be used on a sporadic basis. Rather, human vendors often may be used to distribute products to consumers in the crowd. These vendors, however, can only carry a certain number of products at any given time. There also are certain terrains, such as a beach, where humanly carrying the products may not be practical or efficient.

[0006] What is desired, therefore, is a means of transporting products over different distances or terrains so as to reach the consumer. Preferably, the transportation means should be easy to use, efficient, and serve to catch the eye and the interest of the consumer.

SUMMARY OF INVENTION

[0007] The present invention thus provides a mobile device for promoting the sale of a number of products by a driver. The device may include a steering mechanism with a pair of foot sleds for the driver to stand thereon and a product

compartment positioned about the steering mechanism.

The products positioned within the product compartment may be within reach of the driver.

[0008] Specific embodiments may include the steering mechanism having a base pivotably attached to the pair of foot sleds. The steering mechanism may include a pivot pin for the base to pivot thereabout. The steering mechanism may include a pair of poles attached to the base so as to urge the base to pivot about the pivot pin when the driver moves the pair of poles in a clockwise or counterclockwise manner. The steering mechanism may include a pair of front wheels attached to the base and a pair of rear wheels attached to the foot sleds.

[0009] A drive mechanism may be associated with the steering mechanism. The drive mechanism may include one or more motors associated with the rear wheels. The drive mechanism may include one or more brakes associated with the rear wheels. The drive mechanism may include a rechargeable battery.

[0010] The product compartment may include a lid and a lock out device such that the lock out device renders the drive mechanism inoperative if the lid is open. The lid may be doublely hinged. The product compartment may be re-

movable and may include an insulated shell. The product compartment may include a product lift mechanism. The product lift mechanism may include a base biased towards a first end of the product compartment.

[0011] A method herein may provide products to consumers via a scooter with a product compartment. The method may include loading a number of the products within the product compartment, positioning the driver on the scooter in a standing position, driving the scooter, attracting the attention of a consumer, stopping the scooter, and providing the consumer with one of the products.

[0012] The step of loading the product compartment may include about 120 twelve (12) ounce bottles or about seventy-two (72) twenty (20) ounce bottles. Driving the scooter may include driving the scooter over pavement, gravel, grass, dirt, or sand. Attracting the attention of the consumer may include the driver standing on the scooter. Attracting the attention of the consumer also may include playing music, hands free steering, banked turns, displaying advertising indicia, or displaying flags or banners. Providing the consumer with one of the products may include the driver standing on the scooter.

[0013] A further embodiment may provide for a personal trans-

portation device for promoting the sale of a number of products by a driver. The personal transportation device may include means for the driver to steer the personal transportation device while standing and a product compartment positioned about the steering means. The products may be positioned therein such that the driver has access to the products without dismounting from the personal transportation device.

[0014] The product compartment may include an insulated shell and may be removable. The product compartment may include a product lift mechanism. The product lift mechanism may include a base biased towards a first end of the product compartment. The personal transportation device further may include means to drive the personal transportation device associated with the steering means. The product compartment may include a lid and a lock out device such that the lock out device renders the drive means inoperative if the lid is open.

[0015] A method herein may provide products to consumers via a single occupant vehicle. The method may include positioning the driver on the single occupant vehicle in a standing position, driving the single occupant vehicle, stopping the single occupant vehicle, and providing the

consumer with one of the products while the driver remains standing on the single occupant vehicle.

[0016] These and other features of the present invention will become apparent upon review of the following detailed description of the preferred embodiments when taken in conjunction with the drawings and the appended claims.

BRIEF DESCRIPTION OF DRAWINGS

[0017] Fig. 1 is a front perspective view of an embodiment of a vehicle as described herein.

[0018] Fig. 2 is a rear perspective view showing use of the vehicle of Fig. 1.

[0019] Fig. 3 is a front perspective view of the vehicle of Fig. 1

Fig. 4 is a rear perspective view of the vehicle of Fig. 1

Fig. 5 is bottom plan view of the vehicle of Fig. 1.

[0020] Fig. 6 is a front perspective view of the vehicle of Fig. 1 with the outer shell of the product compartment shown as transparent.

[0021] Fig. 7 is a perspective view of the product compartment with products positioned therein.

[0022] Fig. 8 is a plan view of the front crossbar.

[0023] Fig. 9 is a plan view of the connection of the base and foot sleds.

DETAILED DESCRIPTION

[0024] Referring now to the drawings, in which like numerals refer to like parts throughout the several views, Figs. 1 through 6 show an embodiment of a vehicle *100*. The vehicle *100* may carry products and other items as will be described in detail below.

[0025] The vehicle *100* may include a steering and drive system *110*. The steering and drive system *110* may include a base *120*. The steering and drive system *110* also may include a pivot pin *130* for the base *120* to rotate thereabout. The base *120* may include a front crossbar *140* such that the pivot pin *130* may be mounted therethrough. The front crossbar *140* may be largely "T" shaped for connection with a steering linkage as shown in Fig. 8. The base *120* may include a support plate *150* such that the pivot pin *130* also may extend therethrough. The support plate *150* may have a number of lateral supports *160* fixably attached thereto. The base *120* further may include a rear crossbar *170*. The rear crossbar *170* may extend through the lateral supports *160* of the support plate *150*. The base *120*, and the individual components thereof, may be made out of aluminum, steel, or any type of substantially rigid metal, plastic, or composite.

[0026] Two (2) upwardly extending poles *180* may be attached to the rear crossbar *170*. The poles *180* are fixed with respect to the rear crossbar *170* when attached, but the poles *180* can detach from the rear crossbar *170* for storage. The poles *180* may extend to any convenient length. The poles *180* may be made out of aluminum, steel, or any type of substantially rigid metal, plastic, or composite.

[0027] The base *120* may include a wheel frame *190* such that the pivot pin *130* may pivot thereabout. The wheel frame *190* may include two (2) frame members, a first frame member *200* and second frame member *210*. The wheel frame *190* may have a crossbar *195* connecting the frame members *200*, *210*. The frame members *200*, *210* may extend downwardly from the base *120* at an angle. The angle may be about fifteen (15) degrees to about forty-five (45) degrees from the horizontal. The wheel frame *190* may be made out of aluminum, steel, or any type of substantially rigid metal, plastic, or composite.

[0028] Pivotably attached to the wheel frame *190* may be a pair of wheel struts *220*. Each of the wheel struts *220* may include a number of strut members *230* positioned on either side of the wheel frame *190* via one or more pivot points *240*. The wheel struts *220* may be made out of aluminum, steel,

or any type of substantially rigid metal, plastic, or composite. Each wheel strut 220 also may be attached to the wheel frame 190 by one or more shock absorbers 250. The shock absorbers 250 may be of conventional design.

[0029] A pair of front wheels 260, a left front wheel 261 and a right front wheel 262, may be attached to the wheel struts 220 via a gimbal 270 or a similar structure so as to permit free rotation of each front wheel 260 about a vertical axis for steering and about a horizontal axis for forward and reverse motion of the vehicle. The wheels 260 may be of conventional design and may be pneumatic, solid, or any other type. The wheels 260 may have an outer diameter of about six (6) to about twelve (12) inches (about fifteen (15) to about 30.5 centimeters).

[0030] The wheel frame 190, the strut members 230, and the gimbals 270 are arranged in a parallelogram shaped linkage mechanism so that the wheels 260 are free to move up and down with respect to the wheel frame 190 in response respectively to increased or decreased load on the vehicle 100 by respectively compressing or decompressing the shock absorbers 250. Going over a bump in the road has the same effect as momentarily increasing the weight of the vehicle 100. The wheels 260 will remain substantially

perpendicular to the ground as they move up and down with respect to the wheel frame *190* due to the parallelogram linkage mechanisms described above.

[0031] Also pivotably attached to the front crossbar *140* and the rear crossbar *170* of the base *120* are a pair of foot sleds *280*, a left foot sled *281* and a right foot sled *282*. The foot sleds *280* may be pivotably attached to the rear crossbar *170* via a number of sled flanges *290* with apertures *300* therein. Likewise, the flanges *290* may be connected to a ring *295* that surrounds the rear crossbar *170* for pivotable movement therewith. The flanges *290* may be made out of nylon, acetyl, or any type of substantially rigid metal, plastic, or composite providing reasonably low friction. As is shown in Fig. 9, the foot sleds *280* also may be pivotably attached to the front crossbar *140* via a number of pins *285* attached to the front crossbar *140*. The pins *285* may extend into blocks of elastomeric material *286* fastened to the front edge of each foot sled *280*. The pins *285* in the elastomeric material *286* accomplish the function of a ball and socket joint. The elastomeric material *286* may be polyurethane, neoprene, or other such material.

[0032] The foot sleds *280* themselves may include a pair of foot rests *310* that extend in the direction of travel away from

the front wheels 260. Each foot rest 310 may contain a number of batteries 320 formed into a battery pack. These batteries 320 are used to power the motors as is described in more detail below. There is a cover plate 325 on top of each foot rest 310 that protects the batteries 320. The driver may stand on the cover plates 325. The foot sleds 280 may be made out of aluminum, steel or any type of substantially rigid metal, plastic, or composite.

[0033] The batteries 320 may be twenty-four (24) to about forty-eight (48) volt batteries. The batteries 320 may be conventional lead-acid, nickel cadmium, metal-air, NiMH, or similar types of low weight, long run time energy sources. The batteries 320 may be replaceable. The batteries 320 also may be rechargeable from a standard outlet by using standard battery chargers. The outlet may be about 120 volts or 240 volts and about 40 to 60 hertz. Preferably, the batteries 320 may be recharged in about four (4) hours or less. The batteries 320 may be rechargeable for more than about 1000 times.

[0034] The batteries 320 preferably can power the vehicle 100 for about two (2) to about 2.5 hours or more without a recharge. Alternatively, the batteries 320 may power the vehicle 100 for about twenty (20) to about twenty-five (25)

miles (about thirty-two (32) to about forty (40) kilometers) or more without a recharge. Similarly, the vehicle 100 preferably can run for about two (2) to 2½ hours at full power over relatively flat terrain with a full load of the products 550 and an average size driver (about 150 pounds (about 68 kilograms)) without a recharge.

[0035] Connected to each foot sled 280 may be a motor 330, a left motor 331 and a right motor 332. The motors 330 may be electrical motor such as about twenty-four (24) to about forty-eight (48) volt DC motors. The motors 330 may have a power output of about 250 to about 500 watts each. Although two motors 330 are shown, one motor 330 may be used.

[0036] A set of rear wheels 340, a left rear wheel 341 and a right rear wheel 342, may be connected to each motor 330 for rotation therewith via a drive shaft 350. The rear wheels 340 may be largely identical to the front wheels 260 described above.

[0037] An accelerator 360 may govern control of the motors 330. The accelerator 360 may include a conventional hand lever 370 positioned on one of the poles 180. The hand lever 370 may be connected to the motors 330 by a conventional cable 380. The position of the hand lever 370 may be ad-

justable. The motors *330* and the vehicle *100* as a whole may accelerate up to about fifteen (15) miles per hour (about twenty-four (24) kilometers per hour). Other speeds also may be used depending upon the use of the vehicle *100* as a whole. Any other type of control device may be used with the motors *330*.

[0038] Also attached to each of the rear wheels *340* may be a brake *390*, a left brake *391* and a right brake *392*. The brakes *390* may be of conventional design and may be disc brakes, drum brakes, or similar devices. The brakes *390* may be controlled by a brake hand lever(s) *400* that also may be positioned on one or both of the poles *180*. The position of the hand lever(s) *400* may be adjustable. The brakes *390* may be connected to the brake hand lever(s) *400* via a conventional cable. Other types of control devices also may be used in addition or instead of the hand lever(s) *400*. A parking brake also may be used.

[0039] Control of the motors *330* and the vehicle *100* as a whole may be controlled by a standard on/off switch *430*. Alternatively, a conventional key or combination may be used to control the motors *330* and the vehicle *100*. A conventional dead man switch also may be used to ensure that the vehicle *100* does not move when a driver is not posi-

tioned on the foot sleds 280. Conventional turn signals, brake lights, and a horn or other sound device also may be used.

[0040] Although the steering and drive system 110 has been described in terms of the base 120, the poles 180, the front wheels 260, the foot sleds 280, the motors 330, the rear wheels 340, and the accelerator 360, any type of steering and drive means may be used. For example, the front wheels 260 may be maneuvered via a conventional linkage, a rack and pinion system, a recirculating ball system, a steering wheel, or similar types of devices. Likewise, the vehicle 100 may be a modified Segway® type device (sold by Segway LLC of Manchester, New Hampshire) or similar types of personal vehicles.

[0041] The vehicle 100 also may have a cargo container 440 positioned thereon. The cargo container 440 may be of any convenient size, shape, or dimension. In this embodiment, the cargo container 440 preferably may be insulated and made out of materials with good insulating characteristics such as fiberglass or a molded plastic filled with polyurethane foam, a fiberglass mat, or similar materials.

[0042] The cargo container 440 may be mounted onto or adjacent to the steering and drive system 110. Specifically, the

cargo container *440* may be attached to the support plate *150* of the base *120* via a support column *450*. The cargo container *440* also may be releaseably attached to each of the poles *180*.

[0043] In this embodiment, the cargo container *440* may be divided into a product compartment *460* and an accessory compartment *470*. The cargo container *440* as a whole or simply the product compartment *460* may be removable from the vehicle *100*. As described above, the product compartment *460* may be releaseably attached to the poles *180* via a number of locks *480*. The locks *480* may be quick release type connectors. Alternatively, a mounting stud sliding into a retention slot or similar types of connectors may be used. If the accessory compartment *470* and the product compartment *460* are separate components, the accessory compartment *470* also may be made out of non-insulated materials such as fiberglass, molded plastic, or similar materials.

[0044] The product compartment *460* may have an upper lid *490*. The lid *490* may rotate upwards via a product compartment hinge *500*. The lid *490* also may be doublely hinged via a lid hinge *510*. With the double hinge, the lid *490* need not be opened entirely. The lid *490* may be locked via a

lock 520 positioned on the front of the compartment 460. The lid 490 also may have a lockout switch 525 associated with the lock 520. The lockout switch 525 may prevent the motors 330 from operating when the lid 490 is open. The lockout switch 525 may be a magnet/reed switch or similar types of devices. The lid 490 may be mechanized to open and close automatically.

[0045] Positioned within the product compartment 460 may be a product lift mechanism 530. The product lift mechanism 530 may include a base 540. The base 540 may accommodate a number of products 550. In this embodiment, the products 550 may be cans or bottles of soft drinks or other types of beverages. Any type of product 550, however, that can be kept heated, chilled, or at room temperature may be used herein. The base 540 may be supported at the top of the product compartment 460 via a frame 560. The base 540 and the frame 560 may be connected via a number of extension springs 570. The springs 570 may be biased to keep an upward pressure on the base 540. As the products 550 are removed from the product compartment 460, the springs 570 force the base 540 towards the lid 490. In addition to the extension springs 570, compression springs, gas springs or similar devices may be used

so to urge the products 550 towards the lid 490. The product compartment 460 also may have a drain and/or a drain hose 575 to drain water from therein. The product lift mechanisms 530 can be removed from the product compartment 460 for facilitating cleaning of either the lift mechanism 530 or the interior of the storage compartment 460.

[0046] The vehicle 100 also may have an entertainment system 580 positioned thereon. The entertainment system 580 may have an MP3 player 590, a DVD player, a radio, or a similar type of device. The entertainment system 580 may include a number of speakers 600. The speakers 600 may be positioned within the accessory compartment 470. The speakers 600 may be connected to the MP3 player 590 via an amplifier 610. The entertainment system 580 may have its own battery 420 or the entertainment system 580 may use the same batteries 320 that drive the motors 330. The battery 420 may be a twelve (12) volt battery.

[0047] The vehicle 100 also may have a pair of headlights 620. The headlights 620 may have about six (6) to about fifteen (15) watts each. The headlights 620 may be positioned within the accessory compartment 470 or elsewhere. Rear or taillights also may be used.

[0048] The vehicle *100* also may have a display *630*. The display *630* may show information such as battery level, speed, volume, mileage, etc. The display *630* may be a standard liquid crystal display, an LED screen, a touch screen, or a similar type of device. Operation of the vehicle *100* as a whole and the individual components thereof also may be controlled via the display *630*.

[0049] The vehicle *100* also may any type of graphics positioned thereon. The graphics may be replaceable. The graphics may promote the products *550* positioned within the vehicle *100* or otherwise.

[0050] In use, the products *550* may be loaded within the product compartment *460*. If the product lift mechanism *530* is used, the products *550* may be loaded on the base *540* thereof. The weight of the products *550* on the base *540* causes the base *540* to descend within the product compartment *460*. The springs *570* thus are extended. As the products *550* are removed, the springs *570* urge the base *540* towards the lid *490*. The driver may load the product compartment *460* in about five (5) minutes or less.

[0051] The driver then may close the lid *490* once the products *550* are loaded. The driver then may mount the vehicle *100* by placing his feet on the foot sleds *280*. The driver may

turn the on/off switch 430 to the "on" position, thus starting the motors 330. The driver may then depress the accelerator 360, thus moving the vehicle 100 forward. The driver may stop the vehicle 100 by releasing the accelerator 360 and/or depressing the brake lever(s) 400.

[0052] When the driver tilts the handlebars 180 clockwise or to the right (from the driver's perspective), the rear crossbar 170 tilts clockwise as it rotates around the pivot pin 130 because the handlebars 180 are attached directly to the rear crossbar 170. Because the rear crossbar 170 goes pivotally through both foot sleds 280, the clockwise rotation of the rear crossbar 170 causes the front end of the left foot sled 281 to tilt up. The entire left foot sled 281 also tilts to the right. Simultaneously, the front end of the right foot sled 282 tilts down and the entire right foot sled 282 tilts to the right. This unique tilting of the handlebars 180 and foot sleds 280 creates the visual appearance of a "banked" turn. As the front end of the left foot sled 281 moves up and the front end of the right foot sled 282 moves down, the elastomeric blocks 286 in the front ends of the foot sleds 280 engage the pins 285 extending from the ends of the front crossbar 140. This motion causes the front crossbar 140 to rotate clockwise about pivot pin 130.

As the front crossbar *140* rotates clockwise, the front crossbar *140* also rotates clockwise the wheel frame *190* and turns the front wheels *260*. The driver may facilitate the turn by leaning into the turn. A left hand turn is performed in the opposite manner.

[0053] Steering also can be accomplished by the driver shifting his/her weight on the foot sleds *280*. If the driver distributes his/her weight evenly on both foot sleds, the rear crossbar *170* will remain horizontal. If the driver leans heavily on the right foot sled *282*, the front end of the right foot sled *282* will tilt down rotating the rear crossbar *170* in the clockwise direction. Simultaneously, the front end of the left foot sled *281* will tilt up and the handle bars *180* will tilt to the right. This allows the driver to engage in "eye catching" hands free steering.

[0054] The vehicle *100* preferably has the ability to drive on pavement, gravel, grass, dirt, packed sand, and other types of terrains. The vehicle *100* may be able to drive over uneven pavement and climb over a curb or other obstacles of about two (2) to three (3) inches (about five (5) to about 7.6 centimeters). The vehicle *100* may be able to climb about a fifteen percent (15%) grade for about 164 feet (about 50 meters). The vehicle *100* preferably has about a

six (6) foot (about 1.8 meters) or less turning radius. The vehicle 100 may have a width such that it can fit through a standard door frame of about thirty-six (36) inches (about 91.4 centimeters). The vehicle 100 also may travel in reverse. A forward/reverse switch may be used or a switch may be found on the display 630.

[0055] The charge of the batteries 320 and 420 may be shown on the display 630 or elsewhere. The batteries 320 and 420 may charge at any standard outlet by the use of standard battery chargers. Alternatively, the batteries 320 and 420 may be easily replaced.

[0056] The driver may stop the vehicle 100 at any time and provide the products 550 to consumers. The driver may open the lid 490 half-way via the lid hinge 510 so as to remove a product 550. The driver may open the lid 490 completely via the product compartment hinge 500 so as to reload the product compartment 460. The product compartment 460 may hold about 120 twelve (12) ounce products or about seventy-two (72) twenty (20) ounce bottles. The motors 330 may remain inoperative when the lid 490 is open due to the lockout switch 525.

[0057] Advantageously, the driver need not dismount from the vehicle 100 while providing the products 550 to the con-

sumer. Rather, the vehicle *100* is steady and balanced while stopped such that driver may reach into the product compartment *460* and provide the product *550* to the consumer. This may serve to speed the sales process and allows the vehicle *100* and the driver to continue to attract attention.

[0058] Attention may be brought to the vehicle *100* via the entertainment system *580*. Music and/or advertisements may be played via the entertainment system *580*. Flags or other items may be attached to the poles *180*. The mere fact that the driver is standing in the vehicle *100*, however, may be sufficient to attract the attention of the consumer. Attention may also be brought to the vehicle through the appearance of "banked" turns and by "hands free" steering.

[0059] The vehicle *100* thus may be ideal for use in sporting events, fairs, parks, beaches, recreational areas, and other types of events and/or locations where conventional vending machines, other types of product dispensers, or even human vendors, may not be appropriate. The vehicle *100* may follow the consumer and generate impulse purchases. The vehicle *100* thus can provide products *550* to consumers over relatively long distances in a quick and efficient manner. Further, the vehicle *100* is unique and

serves to catch the eye and attention of the consumer.

[0060] When not in use, the vehicle *100* also may fold upon itself. Specifically, the vehicle *100* may collapse about the rear crossbar *170*.

[0061] It should be understood that the foregoing relates only to the preferred embodiments of the present invention and that numerous changes and modifications may be made herein without departing from the general spirit and scope of the invention as defined by the following claims and the equivalents thereof.